

frequency;

generating said periodic drive signal by combining an amplified periodic signal at said preset frequency and at least an amplified periodic signal at a harmonic of said preset frequency, and

emitting a sequence of substantially chirp-free optical pulses at the transmission wavelength having a duration  $T_{FWHM}$ , the ratio  $T_{bit}/T_{FWHM}$  between the inverse  $T_{bit}$  of said preset frequency and said duration  $T_{FWHM}$  of the pulses, being higher than 6 and lower than 10.

#### REMARKS

Favorable reconsideration of this application, in view of the following comments and as presently amended, is respectfully requested.

Claims 31-52 are pending in this application. Claims 31 and 33-40 were rejected under 35 U.S.C. §103(a) as unpatentable over O'Mahony, "Non-linear Optical Transmission Systems", 1993, in view of U.S. patent no. 5,361,319 to Antos et al. (herein "Antos"), WO 96/27956, and in view of U.S. patent no. 5,570,438 to Fontana et al. (herein "Fontana").

Claim 32 was rejected under 35 U.S.C. §103(a) as unpatentable over O'Mahony in view of Antos, WO 96/27956, and Fontana as applied to claim 31, and further in view of U.S. patent no. 5,267,073 to Tamburello et al. (herein "Tamburello"). Claim 41 was rejected under 35 U.S.C. §103(a) as unpatentable over O'Mahony in view of Antos, WO 96/27956, and Fontana as applied to claim 40, and further in view of EP 0 690 534 A2. Claims 42-45 and 47-49 were rejected under 35 U.S.C. §103(a) as unpatentable over O'Mahony in view of EP 0 690 534 A2 and WO 96/27956. Claim 46 was rejected under 35 U.S.C. §103(a) as unpatentable over O'Mahony in view of EP 0 690 534 A2 and WO 96/27956 as applied to claim 42, and further in view of U.S. patent no. 4,093,919 to Watanabe. Claims 50-51 were rejected under

35 U.S.C. §103(a) as unpatentable over O'Mahony in view of EP 0 690 534 A2 as applied to claim 49, and further in view of U.S. patent no. 5,946,117 to Meli et al. (herein "Meli"). Claim 52 was rejected under 35 U.S.C. §103(a) as unpatentable over EP 0 690 534 A2 in view of WO 96/27956.

Addressing now each of the outstanding rejections based on the cited art, each of those rejections is traversed by the present response.

It is initially noted that each of the independent claims is amended by the present response to clarify a feature recited therein. Specifically, each of the independent claims now recites that "the ratio  $T_{bit}/T_{FWHM}$  between the inverse  $T_{bit}$  of said preset frequency and said duration  $T_{FWHM}$  of the pulses, is higher than 6 and lower than 10". That is, each of the independent claims now clarifies the lower limit of the range for the noted ratio. The subject matter recited in the claims is fully supported by the original specification at, as one non-limiting example, page 16, lines 31-34. At that portion of the specification it is noted that the ratio  $T_{bit}/T_{FWHM}$  is greater than 6, and preferably greater than 8, and is less than 10. That subject matter clarified in the claims is believed to clearly distinguish over the applied art.

The outstanding rejection relies on WO 96/27956 disclosing a ratio of "around 5".<sup>1</sup> Even under that interpretation of the teachings of WO 96/27956, the claim limitations are not met as the claims now require the claimed ratio  $T_{bit}/T_{FWHM}$  to be greater "than 6 and lower than 10".

In such ways, each of the currently pending independent Claims 31, 40, 42, and 52, and the claims dependent therefrom, are believed to patentably distinguish over the applied art.

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<sup>1</sup>Office Action of April 20, 2002, page 4, line 5.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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IN THE CLAIMS

31. (Amended) Pulsed transmission system, comprising at least one transmission station for transmitting an optical signal at a transmission wavelength, at least one reception station, a fibre-optic line linking said at least one transmission station and said at least one reception station and at least one optical amplifier serially linked along said fibre-optic line, wherein said fibre-optic line has a positive overall chromatic dispersion at said transmission wavelength and comprises:

a first optical conductor element, having a first chromatic dispersion at said transmission wavelength; and

a chromatic dispersion compensating unit having a second chromatic dispersion at said transmission wavelength, said second chromatic dispersion being of opposite sign with respect to said first chromatic dispersion,

wherein said at least one transmission station comprises a high speed optical pulse transmitter adapted to generate an RZ optical signal at said transmission wavelength, bearing a coded information at a preset frequency, said RZ optical signal comprising optical pulses of duration  $T_{FWHM}$ , wherein:

the ratio  $T_{bit}/T_{FWHM}$  between the inverse  $T_{bit}$  of said frequency and said duration  $T_{FWHM}$  of the pulses, is higher than  $[200/75]$  6 and lower than 10, and

said optical pulses are substantially free from chirp.

40. (Amended) Optical pulse transmission method, comprising the steps of:

emitting an optical signal at a transmission wavelength and at a preset frequency bearing a coded information;

supplying the optical signal in an optical-fibre line having a chromatic dispersion;

compensating the chromatic dispersion of the signal in the optical-fibre line with a chromatic dispersion of the opposite sign, so as to achieve an overall positive dispersion for the optical signal;

wherein said step of emitting comprises:

generating a sequence of substantially chirp-free optical pulses at the transmission wavelength having a duration  $T_{FWHM}$ , the ratio  $T_{bit}/T_{FWHM}$ , between the inverse  $T_{bit}$  of said preset frequency and said duration  $T_{FWHM}$  of the pulses, being higher than  $[200/75]$  6 and lower than 10; and

modulating said sequence of optical pulses with said coded information.

42. (Twice Amended) High-speed optical pulse transmitter, comprising:

an optical signal modulator;

an optical pulse modulator, optically linked to said signal modulator;

a generator of a continuous optical signal, optically linked to said signal and pulse modulators;

a signal modulator driver for feeding said signal modulator with an electrical signal bearing a coded information with a first frequency; and

a pulse modulator driver comprising:

a circuit for generating a first periodic electrical signal at said first frequency;

a circuit for generating a second periodic electrical signal at a second

frequency which is a harmonic of said first frequency;

a first and a second amplifier for amplifying said first and second periodic electrical signal; and

a combining element for combining said amplified first and second periodic electrical signals, and for feeding said pulse modulator with said combined signal;

wherein said signal modulator emits a sequence of substantially chirp-free optical pulses at the transmission wavelength having a duration  $T_{FWHM}$ , the ratio  $T_{bit}/T_{FWHM}$ , between the inverse  $T_{bit}$  of said preset frequency and said duration  $T_{FWHM}$  of the pulses, being higher than  $[200/75]$   $\underline{6}$  and lower than 10.

52. (Amended) Method of high-speed optical transmission, comprising the steps of:

generating an optical signal;

modulating said optical signal with a periodic drive signal;

modulating said optical signal with an information bearing signal at a preset frequency;

generating said periodic drive signal by combining an amplified periodic signal at said preset frequency and at least an amplified periodic signal at a harmonic of said preset frequency, and

emitting a sequence of substantially chirp-free optical pulses at the transmission wavelength having a duration  $T_{FWHM}$ , the ratio  $T_{bit}/T_{FWHM}$ , between the inverse  $T_{bit}$  of said preset frequency and said duration  $T_{FWHM}$  of the pulses, being higher than  $[200/75]$   $\underline{6}$  and lower than 10.